

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

REPORT OF THE ANNUAL YIELD OF THE ARKANSAS RIVER BASIN  
FOR THE ARKANSAS RIVER BASIN COMPACT  
ARKANSAS--OKLAHOMA

1981 WATER YEAR

By G. Louis Ducret, Jr.

Open-File Report 82-168

Prepared in cooperation with the  
Arkansas Division of Soil and Water Resources

Little Rock, Arkansas  
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INTRODUCTION

The computed annual yields for subbasins in the Arkansas River basin as defined in the Arkansas River Basin Compact, Arkansas-Oklahoma, 1972, are presented in this report. The area bounded by the Compact is shown in figure 1.









This report was prepared by the Water Resources Division of the U.S. Geological Survey in cooperation with the Arkansas Division of Soil and Water Resources. Streamflow data were furnished by the Arkansas and Oklahoma Districts of the Water Resources Division, Geological Survey, and the U.S. Army Corps of Engineers, Tulsa District. The Tulsa District also provided data from the Webbers Falls, Tenkiller Ferry, Robert S. Kerr, and Wister Reservoirs.

DEFINITION OF TERMS

The following terms used in this report are taken from Article II of the Arkansas River Basin Compact, Arkansas-Oklahoma, 1972.

The term "Arkansas River Basin" means all of the drainage basin of the the Arkansas River and its tributaries from a point immediately downstream

# EXPLANATION

-  Spavinaw Creek subbasin
-  Illinois River subbasin
-  Lee Creek subbasin
-  Poteau River subbasin
-  Arkansas River subbasin
-  Compact area boundary
-  Subbasin boundary
-  1958 Gaging station and abbreviated station number

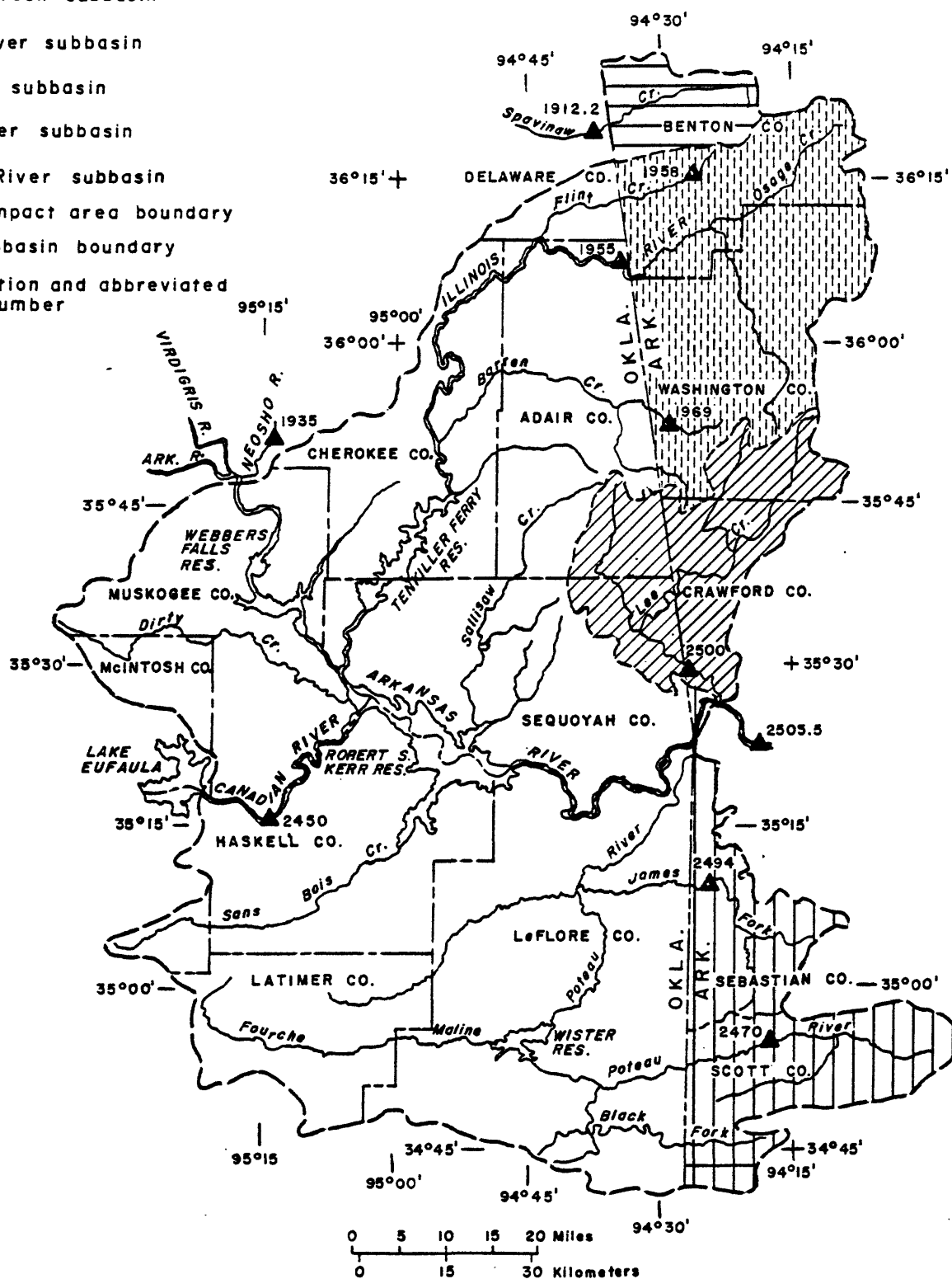
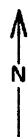


Figure 1.--Arkansas-Oklahoma Arkansas River Compact area and subbasins.

from the confluence of the Neosho River with the Arkansas River (fig. 1) to a point immediately downstream from the confluence of Lee Creek with the Arkansas River, together with the drainage basin of Spavinaw Creek in Arkansas (top of fig. 1), but excludes that part of the drainage basin of the Canadian River upstream from Lake Eufaula Dam.

The term "Spavinaw Creek Subbasin" means the drainage area of Spavinaw Creek in the State of Arkansas.

The term "Illinois River Subbasin" means the drainage area of Illinois River in the State of Arkansas.

The term "Lee Creek Subbasin" means the drainage area of Lee Creek in the State of Arkansas and in the State of Oklahoma.

The term "Poteau River Subbasin" means the drainage area of Poteau River in the State of Arkansas.

The term "Arkansas River Subbasin" means all areas of the Arkansas River Basin except the four subbasins described previously.

The term "water year" means a 12-month period beginning on October 1 and ending September 30.

The term "annual yield" means the computed annual gross runoff from any specified subbasin. The runoff would have passed any certain point on a stream and would have originated within any specified area under natural conditions, without any manmade depletion or accretion during the water year.

Other hydrologic terms used in this report are defined as follows:

Acre-foot (acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or 325,851 gallons.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Cubic feet per second ( $\text{ft}^3/\text{s}$ ) is the rate of discharge representing a volume of 1 cubic foot passing a specified point during 1 second, and is equivalent to 7.48 gallons per second or 448.8 gallons per minute.

Discharge is the volume of water that passes a given point within a given period of time.

Instantaneous discharge is the discharge at a particular instant of time.

Mean discharge is the arithmetic average of individual daily mean discharges during a specific period.

Drainage area of a stream at a specified point on the stream is that area enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream upstream from the specified point. Figures of drainage area given herein include all closed basins, or non-contributing areas within the area, unless otherwise noted.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of gage height or discharge are obtained.

Stage-discharge relation is the relation between gage height and the amount of water flowing in a channel.

The following factors may be used to convert the English units published herein to selected units of the International System (SI):

Multiply English units	By	To obtain SI units
Length		
inch (in)	25.4	millimeter (mm)
foot (ft)	.3048	meter (m)
mile (mi)	1.609	kilometer (km)
Area		
acre	4047	square meter (m <sup>2</sup> )
	.004047	square kilometer (km <sup>2</sup> )
square mile (mi <sup>2</sup> )	2.590	square kilometer (km <sup>2</sup> )
Volume		
cubic foot (ft <sup>3</sup> )	.02832	cubic meter (m <sup>3</sup> )
acre-foot (acre-ft)	1233	cubic meter (m <sup>3</sup> )
	1.233x10 <sup>-6</sup>	cubic kilometer (km <sup>3</sup> )
Flow		
cubic foot per second (ft <sup>3</sup> /s)	28.32	liter per second (l/s)
	.02832	cubic meter per second (m <sup>3</sup> /s)

#### COMPUTATION OF ANNUAL YIELD

The annual yield and deficiency (table 1) for each subbasin were computed as described in Appendix I to the Arkansas River Basin Compact Arkansas-Oklahoma, 1972, supplement No. 1. Actual runoff for the subbasins (table 2) was computed as described in the Compact except for the stations Arkansas River at Muskogee, which has been discontinued, and Arkansas River at Van Buren, which has been moved 7.9 miles (12.7 km) downstream.

Annual depletion caused by major reservoirs (table 3) was computed for the four major reservoirs in the basin as described in Appendix I to the Compact. Depletion caused by small reservoirs and minor diversion for municipal

Table 1.--Annual yield and deficiency for the subbasin as defined in the  
Arkansas-Oklahoma Arkansas River Basin Compact

Subbasin	[Average annual flow in cubic feet per second for 1981 water year]					
	(1) Actual runoff from the subbasins	(2) Total depletions (+) or accretions (-)	(3) Annual yield	(4) Percent depletion allowed	(5) Minimum required flow	(6) Deficiency
Spavinaw Creek	28.4	0	28.4	50	14.2	0
Illinois River	246	0	246	60	98.4	0
Lee Creek	278	0	278	100	0	0
Poteau River	421	0	421	60	168	0
Arkansas River	1,178	+173	1,351	60	540	0



Table 2.--Actual runoff from the subbasins

[Mean discharge in cubic feet per second for the 1981 water year]					
Month	Spavinaw Creek D.A.=135 mi <sup>2</sup> a	Illinois River D.A.=744 mi <sup>2</sup> b	Lee Creek D.A.=464 mi <sup>2</sup> c	Poteau River D.A.=536 mi <sup>2</sup> d	Arkansas River D.A.=4,553 mi <sup>2</sup> e
October	7	73	0	75	-162f
November	9	96	19	97	-110f
December	12	128	102	227	1,335
January	9	79	19	28	-306f
February	14	117	190	248	778
March	19	222	612	574	2,225
April	22	236	357	188	360
May	43	662	998	1,240	4,829
June	72	458	937	1,390	6,463
July	47	422	88	657	-2,211f
August	55	354	23	238	350
September	22	106	5	78	652
1981 Water Year	28	246	278	421	1,178
1981 Water Year (acre-ft)	20,270	178,100	201,300	304,800	852,800

a includes 31 mi<sup>2</sup> ungaged.

b includes 72 mi<sup>2</sup> ungaged.

c includes 38 mi<sup>2</sup> ungaged.

d includes 186 mi<sup>2</sup> ungaged.

e Computed by subtracting drainage area at Arkansas River at Muskogee, Canadian River near Whitefield, Illinois River Subbasin, Lee Creek Subbasin, and Poteau River Subbasin from drainage area at Arkansas River at Dam No. 13, near Van Buren, Ark.

f Negative discharge caused by storage in reservoirs, seepage into groundwater, and evaporation from reservoirs.

Table 3.--Annual depletion caused by major reservoirs

[1981 Water Year]

Reservoir	Yearend contents (acre-ft)	Change in contents in water year (acre-ft)	Precipitation on reservoir surface (In.) <sup>a</sup>	Evaporation from reservoir (In.) <sup>b</sup>	Depletion (acre-ft)	Depletion (Average annual ft <sup>3</sup> /s)
Webbers Falls-----	161,100	+200	30.37	40.17	+13,240	+18.3
Tenkiller Ferry----	602,300	+29,600	36.89	40.03	+40,150	+55.4
Robert S. Kerr-----	464,600	-18,300	34.74	48.15	+51,700	+71.4
Wister-----	62,360	+18,450	47.67	36.20	+20,300	+28.0

a From U.S. Corps of Engineers, Tulsa District.

b Adjusted for pan coefficient of 0.70 (from Wisler).

and agricultural use are insignificant at this time and data are not included in tables 1 and 3.

A compilation of the areas of lakes and ponds in the Poteau River, Lee Creek, Spavinaw Creek, and Illinois River Subbasins was conducted by the Arkansas Division of Soil and Water Resources. This information was used to partially evaluate depletions caused by small reservoirs. Analysis showed that their present impact on the depletion in any Subbasin is less than 1 percent, and further consideration is not necessary at this time.

Streamflow data used in the computations are given in streamflow records (p. 11 to 25). The station description under "Remarks" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent, "good" is within 10 percent, and "fair" is within 15 percent. "Poor" means that daily discharges have been less than "fair" accuracy.

## REFERENCES

- Arkansas River Compact Committee, March 1972, Arkansas River Basin Compact  
Arkansas-Oklahoma, 1972, with Supplemental Interpretive Comments, Supplement No. 1: Austin, Tex., 31 p.
- Wisler, C. D., and Brater, E. F., 1949, Hydrology: New York, N.Y., John Wiley  
& Sons, Inc., 150 p.

**STREAMFLOW RECORDS**

# STREAMFLOW

07165570 Arkansas River near Haskell, Okla.

LOCATION.--Lat 35°49'23", long 95°38'39", in NE 1/4 sec.31, T.16 N., R.16 E., Muskogee County, near right bank on downstream side of bridge on State Highway 104, 2.0 mi (3.2 km) east of Haskell, 23.5 mi (37.8 km) upstream from Verdigris River, and at mile 483.7 (778.3 km).

DRAINAGE AREA.--75,473 mi<sup>2</sup> (195,475 km<sup>2</sup>), of which 12,541 mi<sup>2</sup> (32,481 km<sup>2</sup>) probably is noncontributing.

AVERAGE DISCHARGE.--9 years, 8,677 ft<sup>3</sup>/s (245.7 m<sup>3</sup>/s).

EXTREMES.--June 1972 to current year: Maximum discharge, 106,000 ft<sup>3</sup>/s (3,001 m<sup>3</sup>/s) Nov. 6, 1974; minimum daily, 193 ft<sup>3</sup>/s (5.47 m<sup>3</sup>/s) Feb. 26, 1977.

REMARKS.--Records good. Flow regulated by Keystone Lake, 55.1 mi (88.7 km) upstream.

COOPERATION.--Gage-height record and discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

## Monthly and yearly discharge

Month	Total (ft <sup>3</sup> /s)	Maximum daily (ft <sup>3</sup> /s)	Minimum daily (ft <sup>3</sup> /s)	Mean (ft <sup>3</sup> /s)	Runoff in acre- feet
October	20,616	1,340	338	665	40,890
November	19,389	1,210	389	646	38,460
December	24,871	1,420	465	802	49,330
January	17,585	687	372	567	34,880
February	22,735	4,330	341	812	45,090
March	22,919	1,180	287	739	45,460
April	26,016	2,820	323	867	51,600
May	76,621	9,010	349	2,472	152,000
June	195,763	13,600	745	6,525	388,300
July	141,262	8,730	378	4,557	280,200
August	99,382	8,130	542	3,206	197,100
September	98,130	9,100	1,110	3,271	194,600
Water Year 1981	765,289	13,600	287	2,097	1,518,000

# STREAMFLOW

07176000 Verdigris River near Claremore, Okla.

LOCATION.--Lat 36°18'26", long 95°41'52", in SE 1/4 SW 1/4 sec.10, T.21 N., R.15 E., Rogers County, near left bank on downstream side of pier of bridge on State Highway 20, 2.3 mi (3.7 km) downstream from Caney River, 4.5 mi (7.2 km) west of Claremore, 12.4 mi (20.0 km) upstream from Bird Creek, and at mile 76.0 (122.3 km).

DRAINAGE AREA.--6,534 mi<sup>2</sup> (16,923 km<sup>2</sup>).

AVERAGE DISCHARGE.--27 years (water years 1936-62), 3,723 ft<sup>3</sup>/s (105.4 m<sup>3</sup>/s); 17 years (water years 1965-81), 3,715 ft<sup>3</sup>/s (105.2 m<sup>3</sup>/s).

EXTREMES.--October 1935 to current year: Maximum discharge, 182,000 ft<sup>3</sup>/s (5,150 m<sup>3</sup>/s) May 21, 1943; no flow at times in 1936, 1939-40, 1956.

REMARKS.--Records fair. Flow regulated since May 1963 by Oologah Lake 14.3 mi (23.0 km) upstream; some regulation by dams in Kansas since 1949 and by Hulah Lake since 1950.

COOPERATION.--Gage-height record and discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

## Monthly and yearly discharge

Month	Total (ft <sup>3</sup> /s)	Maximum daily (ft <sup>3</sup> /s)	Minimum daily (ft <sup>3</sup> /s)	Mean (ft <sup>3</sup> /s)	Runoff in acre- feet
October	1,220	71	10	39.4	2,420
November	1,510	88	32	50.3	3,000
December	1,647	134	40	53.1	3,270
January	1,174	42	35	37.9	2,330
February	1,370	70	35	48.9	2,720
March	1,543	130	29	49.8	3,060
April	4,435	1,330	48	148	8,800
May	16,498	5,420	35	532	32,720
June	25,404	7,100	178	847	50,390
July	46,862	5,300	148	1,512	92,950
August	10,324	887	131	333	20,480
September	21,322	1,700	45	711	42,290
Water Year 1981	133,309	7,100	10	365	264,400

# STREAMFLOW

07177500 Bird Creek near Sperry, Okla.

LOCATION.—Lat 36°16'42", long 95°57'14", in NW 1/4 NW 1/4 sec.29, T.21 N., R.13 E., Tulsa County, on downstream side of right pier of county road bridge, 1.5 mi (2.4 km) upstream from Delaware Creek, 2.4 mi (3.9 km) downstream from Hominy Creek, 2.5 mi (4.0 km) southeast of Sperry, and at mile 25.0 (40.2 km).

DRAINAGE AREA.—905 mi<sup>2</sup> (2,344 km<sup>2</sup>).

AVERAGE DISCHARGE.—43 years, 478 ft<sup>3</sup>/s (13.54 m<sup>3</sup>/s).

EXTREMES.—October 1938 to current year: Maximum discharge, 90,000 ft<sup>3</sup>/s (2,550 m<sup>3</sup>/s) Oct. 3, 1959; no flow at times in 1939, 1954-57, 1964-66, 1970.

REMARKS.—Records good.

COOPERATION.—Gage-height record and discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

## Monthly and yearly discharge

Month	Total (ft <sup>3</sup> /s)	Maximum daily (ft <sup>3</sup> /s)	Minimum daily (ft <sup>3</sup> /s)	Mean (ft <sup>3</sup> /s)	Runoff in acre- feet
October	281.7	17	4.6	9.09	559
November	197.5	12	1.8	6.58	392
December	501.0	44	6.5	16.2	994
January	213.3	7.9	5.8	6.88	423
February	322.4	18	7.1	11.5	639
March	731	69	12	23.6	1,450
April	663.6	86	5.7	22.1	1,320
May	8,071.5	3,100	4.7	260	16,010
June	9,075.8	4,020	9.8	303	18,000
July	3,783	2,090	12	122	7,500
August	3,833.5	987	7.2	124	7,600
September	756.3	322	2.1	25.2	1,500
Water Year 1981	28,430.6	4,020	1.8	77.9	56,390



# STREAMFLOW

07191220 Spavinaw Creek near Sycamore, Okla.

LOCATION.--Lat 36°19'57", long 94°58'24", in NE 1/4 SW 1/4 sec.4, T.21 N., R.25 E., Delaware County, on right bank 1.8 mi (2.9 km) upstream from Cherokee Creek, 4.8 mi (7.7 km) northeast of Row, 6.5 mi (10.5 km) south-east of Sycamore, and at mile 35.0 (56.3 km).

DRAINAGE AREA.--133 mi<sup>2</sup> (344 km<sup>2</sup>).

AVERAGE DISCHARGE.--20 years, 104 ft<sup>3</sup>/s (2.945 m<sup>3</sup>/s).

EXTREMES.--October 1961 to current year: Maximum discharge, 39,800 ft<sup>3</sup>/s (1,127 m<sup>3</sup>/s) July 27, 1975; minimum, 1.2 ft<sup>3</sup>/s (0.034 m<sup>3</sup>/s) Aug. 9, 1964.

REMARKS.--Records good.

Month	Monthly and yearly discharge				Runoff in acre- feet
	Total (ft <sup>3</sup> /s)	Maximum daily (ft <sup>3</sup> /s)	Minimum daily (ft <sup>3</sup> /s)	Mean (ft <sup>3</sup> /s)	
October	192.7	9.3	4.1	6.22	382
November	284.4	11	8.0	9.48	564
December	368.3	17	8.9	11.9	731
January	289.5	10	8.8	9.34	574
February	362	18	10	12.9	718
March	584	27	13	18.8	1,160
April	650	35	15	21.7	1,290
May	1,304	107	21	42.1	2,590
June	2,130	300	36	71.0	4,220
July	1,455	250	12	46.9	2,890
August	1,709	93	24	55.1	3,390
September	648	44	13	21.6	1,290
Water Year 1981	9,976.9	300	4.1	27.3	19,790

# STREAMFLOW

07193500 Neosho River below Fort Gibson Lake, near Fort Gibson, Okla.

LOCATION.--Lat 35°51'15", long 95°13'45", in SE 1/4 NW 1/4 sec.19, T.16 N., R.20 E., Cherokee County, on left bank 1.1 mi (1.8 km) downstream from Fort Gibson Dam, 4.5 mi (7.2 km) north of Fort Gibson, and at mile 6.6 (10.6 km).

DRAINAGE AREA.--12,495 mi<sup>2</sup> (32,362 km<sup>2</sup>).

AVERAGE DISCHARGE.--31 years (1950-81), 7,527 ft<sup>3</sup>/s (213.2 m<sup>3</sup>/s).

EXTREMES.--May 1950 to current year: Maximum discharge, 223,000 ft<sup>3</sup>/s (6,320 m<sup>3</sup>/s) May 26, 1957; minimum, 12 ft<sup>3</sup>/s (0.34 m<sup>3</sup>/s) Oct. 10, 1957, Aug. 23, 1964.

REMARKS.--Records good. Flow completely regulated by Fort Gibson Lake.

COOPERATION.--Gage-height record and discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

Month	Monthly and yearly discharge				Runoff in acre- feet
	Total (ft <sup>3</sup> /s)	Maximum daily (ft <sup>3</sup> /s)	Minimum daily (ft <sup>3</sup> /s)	Mean (ft <sup>3</sup> /s)	
October	5,223	928	15	168	10,360
November	6,374	580	15	212	12,640
December	7,770	2,200	15	251	15,410
January	4,220	917	15	136	8,370
February	8,721	1,430	15	311	17,300
March	32,432	6,040	15	1,046	64,330
April	18,750	4,090	15	625	37,190
May	41,907	7,140	15	1,352	83,120
June	138,596	11,700	15	4,620	274,900
July	228,112	13,400	15	7,358	452,500
August	148,696	11,400	15	4,797	294,900
September	70,132	7,700	15	2,338	139,100
Water Year 1981	710,933	13,400	15	1,948	1,410,000

# STREAMFLOW

07194500 Arkansas River near Muskogee, Okla.

LOCATION.--Lat 35°46'10", long 95°17'55", in NW 1/4 sec.21, T.15 N., R.19 E., at bridge on U.S. Highway 62, 1.7 mi (2.7 km) downstream from Neosho River, 3.5 mi (5.6 km) northeast of Muskogee.

DRAINAGE AREA.--96,674 mi<sup>2</sup> (250,386 km<sup>2</sup>) of which 12,541 mi<sup>2</sup> (32,481 km<sup>2</sup>) probably is noncontributing.

REMARKS.--Gaging station discontinued Sept. 30, 1970, due to backwater conditions. Streamflow computed by combining flow at station 07165570 Arkansas River near Haskell, station 07176000 Verdigris River near Claremore, station 07177500 Bird Creek near Sperry, station 07193500 Neosho River below Fort Gibson Lake near Fort Gibson, and adjusting the total for the ungaged intervening drainage area.

Monthly and yearly discharge		
Month	Mean (ft <sup>3</sup> /s)	Runoff in acre-feet
October	894	54,970
November	924	54,980
December	1,148	70,590
January	758	46,610
February	1,196	66,420
March	1,896	116,600
April	1,687	100,400
May	4,983	306,400
June	12,730	757,500
July	13,730	844,200
August	8,637	531,100
September	6,383	379,800
Water Year 1981	4,602	3,332,000

# STREAMFLOW

07195500 Illinois River near Watts, Okla.

LOCATION.--Lat 36°07'48", long 94°34'12", in NE 1/4 sec.18, T.19 N., R.26 E., Adair County, near right bank on downstream side of pier of bridge on U.S. Highway 59, 1.5 mi (2.4 km) north of Watts, 4.5 mi (7.2 km) downstream from Cincinnati Creek, and at mile 106.2 (170.9 km).

DRAINAGE AREA.--635 mi<sup>2</sup> (1,645 km<sup>2</sup>).

AVERAGE DISCHARGE.--26 years, 564 ft<sup>3</sup>/s (15.97 m<sup>3</sup>/s).

EXTREMES.--August 1955 to current year: Maximum discharge, 68,000 ft<sup>3</sup>/s (1,930 m<sup>3</sup>/s) July 25, 1960; minimum, 8.6 ft<sup>3</sup>/s (0.24 m<sup>3</sup>/s) Oct. 26, 1955, Sept. 19, Oct. 14, 1956.

REMARKS.--Records good. Some regulation at low flow by Lake Francis Dam, 0.8 mi (1.29 km) above station. Since July 2, 1957, small diversion above station for municipal water supply for city of Siloam Springs, Ark.

COOPERATION.--Gage-height record and discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

## Monthly and yearly discharge

Month	Total (ft <sup>3</sup> /s)	Maximum daily (ft <sup>3</sup> /s)	Minimum daily (ft <sup>3</sup> /s)	Mean (ft <sup>3</sup> /s)	Runoff in acre- feet
October	1,968	108	45	63.5	3,900
November	2,418	119	62	80.6	4,800
December	3,484	324	69	112	6,910
January	2,073	77	60	66.9	4,110
February	2,415	111	69	86.3	4,790
March	5,896	410	125	190	11,690
April	6,572	681	102	219	13,040
May	13,638	1,640	128	440	27,050
June	11,504	1,510	25	383	22,820
July	13,298	4,630	88	429	26,380
August	10,686	1,700	126	345	21,200
September	2,984	139	66	99.5	5,920
Water Year 1981	76,936	4,630	25	211	152,600

# STREAMFLOW

07195800 Flint Creek at Springtown, Ark.

LOCATION.--Lat 36°15'20", long 94°25'50", in NW 1/4 sec.7, T.18 N., R.32 W., Benton County, on right bank 20 ft (6 m) downstream from State Highway 12, 0.8 mi (1.3 km) southwest of Springtown.

DRAINAGE AREA.--14.2 mi<sup>2</sup> (36.8 km<sup>2</sup>).

AVERAGE DISCHARGE.--20 years, 13.5 ft<sup>3</sup>/s (0.382 m<sup>3</sup>/s).

EXTREMES.--June 1961 to current year: Maximum discharge, 6,730 ft<sup>3</sup>/s (191 m<sup>3</sup>/s) Aug. 14, 1961; no flow Aug. 3, Sept. 16, 1980.

REMARKS.--Records good. Some diversion for irrigation above gage.

## Monthly and yearly discharge

Month	Total (ft <sup>3</sup> /s)	Maximum daily (ft <sup>3</sup> /s)	Minimum daily (ft <sup>3</sup> /s)	Mean (ft <sup>3</sup> /s)	Runoff in acre- feet
October	123.1	10	1.7	3.97	244
November	146.3	8.6	3.1	4.88	290
December	113.9	8.3	2.4	3.67	226
January	92.3	3.7	2.6	2.98	183
February	108.7	7.3	2.8	3.88	216
March	114.5	13	2.1	3.69	227
April	94.4	6.1	1.7	3.15	187
May	238.9	30	2.6	7.71	474
June	122.5	27	1.4	4.08	243
July	162.7	20	1.1	5.25	323
August	286.8	46	3.0	9.25	569
September	90.6	4.1	2.3	3.02	180
Water Year 1981	1,694.7	46	1.1	4.64	3,360

# STREAMFLOW

07196900 Baron Fork at Dutch Mills, Ark.

LOCATION.--Lat 35°52'48", long 94°29'11", on line between secs.21 and 22, T.14 N., R.33 W., Washington County, near right bank on downstream side of bridge on State Highway 59 at Dutch Mills, 2.2 mi (3.5 km) downstream from Fly Creek, and 2.9 mi (4.7 km) upstream from Arkansas-Oklahoma State line.

DRAINAGE AREA.--46.0 mi<sup>2</sup> (119 km<sup>2</sup>).

AVERAGE DISCHARGE.--23 years, 37.6 ft<sup>3</sup>/s (1.065 m<sup>3</sup>/s).

EXTREMES.--April 1958 to current year: Maximum discharge, 17,100 ft<sup>3</sup>/s (484 m<sup>3</sup>/s) July 13, 1972; no flow at times in 1963, 1967, 1980, 1981.

REMARKS.--Records good.

Month	Monthly and yearly discharge				Runoff in acre- feet
	Total (ft <sup>3</sup> /s)	Maximum daily (ft <sup>3</sup> /s)	Minimum daily (ft <sup>3</sup> /s)	Mean (ft <sup>3</sup> /s)	
October	9.95	1.1	.00	.32	20
November	45.42	3.3	.88	1.51	90
December	122.77	30	.92	3.96	244
January	57.1	2.5	1.4	1.84	113
February	247.6	67	2.1	8.84	491
March	442.7	56	5.6	14.3	878
April	279.6	25	3.2	9.32	555
May	2,870.2	1,430	5.5	92.6	5,690
June	1,146.4	205	2.6	38.2	2,270
July	144.5	20	1.2	4.66	287
August	121.7	28	1.1	3.93	241
September	35.44	3.7	.60	1.18	70
Water Year 1981	5,523.38	1,430	.00	15.1	10,960

# STREAMFLOW

07245000 Canadian River near Whitefield, Okla.

LOCATION.--Lat 35°15'45", long 95°14'19", in SE 1/4 SE 1/4 sec.12, T.9 N., R.19 E., Haskell County, near right bank on downstream side of pier of bridge on State Highway 2, 0.8 mi (1.3 km) north of Whitefield, 5.5 mi (8.8 km) upstream from Taleka (Snake) Creek, 8.2 mi (13.2 km) downstream from Eufaula Dam, and at mile 18.8 (30.2 km).

DRAINAGE AREA.--47,576 mi<sup>2</sup> (123,222 km<sup>2</sup>), of which 9,700 mi<sup>2</sup> (25,123 km<sup>2</sup>) is probably noncontributing.

AVERAGE DISCHARGE.--25 years (water years 1939-63), 6,005 ft<sup>3</sup>/s (170.1 m<sup>3</sup>/s); 14 years (water years 1968-81), 4,817 ft<sup>3</sup>/s (136.4 m<sup>3</sup>/s).

EXTREMES.--July 1938 to current year: Maximum discharge, 281,000 ft<sup>3</sup>/s (7,960 m<sup>3</sup>/s) May 10, 1943; minimum daily, 0.4 ft<sup>3</sup>/s (0.011 m<sup>3</sup>/s) Oct. 8, 1956.

REMARKS.--Records good. Prior to February 1964, occasional slight regulation by Conchas Lake in New Mexico and except for 54 mi<sup>2</sup> (140 km<sup>2</sup>) of intervening area, completely regulated thereafter by Eufaula Lake.

COOPERATION.--Gage-height record and discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

## Monthly and yearly discharge

Month	Total (ft <sup>3</sup> /s)	Maximum daily (ft <sup>3</sup> /s)	Minimum daily (ft <sup>3</sup> /s)	Mean (ft <sup>3</sup> /s)	Runoff in acre- feet
October	17,545	1,890	45	566	34,800
November	9,098	1,720	22	303	18,050
December	7,643	1,570	17	247	15,160
January	3,688	326	47	119	7,320
February	3,549	593	41	127	7,040
March	3,993	773	39	129	7,920
April	2,446	357	22	82	4,850
May	4,588	415	49	148	9,100
June	34,868	5,570	33	1,162	69,160
July	78,247	5,990	87	2,524	155,200
August	153,699	11,700	119	4,958	304,900
September	49,863	7,710	113	1,662	98,900
Water Year 1981	369,227	11,700	17	1,012	732,400

# STREAMFLOW

07247000 Poteau River at Cauthron, Ark.

LOCATION.--Lat 34°55'08", long 94°17'55", in NW 1/4 SW 1/4 sec.16, T.3 N., R.31 W., Scott County, on right bank at downstream side of highway bridge at Cauthron, 2.9 mi (4.7 km) downstream from Cross Creek, 7.8 mi (12.6 km) downstream from Jones Creek, and at mile 109.0 (175.4 km).

DRAINAGE AREA.--203 mi<sup>2</sup> (526 km<sup>2</sup>).

AVERAGE DISCHARGE.--42 years, 214 ft<sup>3</sup>/s (6.060 m<sup>3</sup>/s).

EXTREMES.--February 1939 to current year: Maximum discharge, 32,200 ft<sup>3</sup>/s (912 m<sup>3</sup>/s) May 20, 1960; no flow at times in most years.

REMARKS.--Records good. As of September 1973, flow from 74.8 mi<sup>2</sup> (194 km<sup>2</sup>) above this station is controlled by 12 floodwater-detention reservoirs with a total combined capacity of 32,660 acre-ft (40.3 hm<sup>3</sup>) below the flood spillway crests, of which 29,546 acre-ft (36.4 hm<sup>3</sup>) is flood-detention capacity, 2,100 acre-ft (2.58 hm<sup>3</sup>) is water-supply storage, and 1,014 acre-ft (1.25 hm<sup>3</sup>) is sediment-storage capacity.

## Monthly and yearly discharge

Month	Total (ft <sup>3</sup> /s)	Maximum daily (ft <sup>3</sup> /s)	Minimum daily (ft <sup>3</sup> /s)	Mean (ft <sup>3</sup> /s)	Runoff in acre- feet
October	945.50	310	.40	30.5	1,880
November	730.0	154	4.0	24.3	1,450
December	2,941	928	10	94.9	5,830
January	436.9	33	9.1	14.1	867
February	2,218	425	11	79.2	4,400
March	6,934	734	47	224	13,750
April	2,400	360	20	80.0	4,760
May	15,792	2,850	56	509	31,320
June	17,861	3,640	49	595	35,430
July	9,737.3	4,710	8.3	314	19,310
August	2,375	397	13	76.6	4,710
September	700.1	95	1.6	23.3	1,390
Water Year 1981	63,070.80	4,710	.40	173	125,100



# STREAMFLOW

07249400 James Fork near Hackett, Ark.

LOCATION.--Lat 35°09'45", long 94°24'25", in NW 1/4 NW 1/4 sec.34, T.6 N., R.32 W., Sebastian County, near left bank on downstream side of bridge on State Highway 45, 1.7 mi (2.7 km) south of Hackett, 2.0 mi (3.2 km) downstream from Elder Branch, 2.0 mi (3.2 km) upstream from small tributary, and 3.6 mi (5.8 km) upstream from Arkansas-Oklahoma State line.

DRAINAGE AREA.--147 mi<sup>2</sup> (381 km<sup>2</sup>).

AVERAGE DISCHARGE.--23 years, 128 ft<sup>3</sup>/s (3.625 m<sup>3</sup>/s).

EXTREMES.--April 1958 to current year: Maximum discharge, 30,000 ft<sup>3</sup>/s (850 m<sup>3</sup>/s) May 14, 1968; no flow at times.

REMARKS.-- Records good.

Monthly and yearly discharge					
Month	Total (ft <sup>3</sup> /s)	Maximum daily (ft <sup>3</sup> /s)	Minimum daily (ft <sup>3</sup> /s)	Mean (ft <sup>3</sup> /s)	Runoff in acre- feet
October	547.45	81	.03	17.7	1,090
November	1,280.2	85	9.2	42.7	2,540
December	1,528.6	239	4.4	49.3	3,030
January	102.9	4.6	1.7	3.32	204
February	2,417	688	15	86.3	4,790
March	4,654	649	60	150	9,230
April	1,221	75	13	40.7	2,420
May	8,826	1,700	15	285	17,510
June	8,858	2,490	23	295	17,570
July	2,956.2	884	8.9	95.4	5,860
August	2,533	269	24	81.7	5,020
September	840.9	126	1.2	28.0	1,670
Water Year 1981	35,765.25	2,490	.03	98.0	70,940

# STREAMFLOW

07250000 Lee Creek near Van Buren, Ark.

LOCATION.--Lat 35°29'40", long 94°26'58", in SE 1/4 sec.21, T.12 N., R.27 E., Indian Meridian, Sequoyah County, Okla., on right bank 300 ft (91 m) west of Arkansas-Oklahoma State line, 3.2 mi (5.1 km) downstream from Webbers Creek, 6.8 mi (10.9 km) northwest of Van Buren, and at mile 7.8 (12.6 km).

DRAINAGE AREA.--426 mi<sup>2</sup> (1,103 km<sup>2</sup>).

AVERAGE DISCHARGE.--37 years (1930-36, 1950-81), 486 ft<sup>3</sup>/s (13.76 m<sup>3</sup>/s).

EXTREMES.--September 1930 to June 1937, October 1950 to current year: Maximum discharge, 80,600 ft<sup>3</sup>/s (2,280 m<sup>3</sup>/s) May 6, 1960; no flow at times.

REMARKS.--Records good.

Month	Monthly and yearly discharge				Runoff in acre- feet
	Total (ft <sup>3</sup> /s)	Maximum daily (ft <sup>3</sup> /s)	Minimum daily (ft <sup>3</sup> /s)	Mean (ft <sup>3</sup> /s)	
October	15.30	4.9	.00	.49	30
November	548.8	42	3.9	18.3	1,090
December	2,953	439	16	95.3	5,860
January	505	26	11	16.3	1,000
February	4,867	803	19	174	9,650
March	17,480	2,100	192	564	34,670
April	9,846	793	128	328	19,530
May	28,323	5,690	161	914	56,180
June	25,771	4,840	62	859	51,120
July	2,493.8	423	7.4	80.4	4,950
August	671.8	83	8.1	21.7	1,330
September	146.31	10	.91	4.88	290
Water Year 1981	93,621.01	5,690	.00	256	185,700

# STREAMFLOW

07250550 Arkansas River at Dam No. 13, near Van Buren, Ark.

LOCATION.--Lat35°20'56", long 94°17'54", in sec.28, T.8 N., R.31 W., Sebastian County, in Dam No. 13 control house on right bank, and at mile 308.9 (497.0 km).

DRAINAGE AREA.--150,547 mi<sup>2</sup> (389,917 km<sup>2</sup>), of which 22,241 mi<sup>2</sup> (57,604 km<sup>2</sup>) is probably noncontributing.

AVERAGE DISCHARGE.--54 years, 30,610 ft<sup>3</sup>/s (866.9 m<sup>3</sup>/s).

EXTREMES.--October 1927 to current year: Maximum discharge, 850,000 ft<sup>3</sup>/s (24,100 m<sup>3</sup>/s) May 12, 1943; no flow Nov. 2, 1975, Feb. 1, 1981.

REMARKS.--Records good. Prior to October 1969, published as 07250500 Arkansas River at Van Buren. Beginning Apr. 26, 1970, daily discharge computed from relation between discharge, head, and gate openings. Flow regulated by many locks, dams, and reservoirs upstream.

## Monthly and yearly discharge

Month	Total (ft <sup>3</sup> /s)	Maximum daily (ft <sup>3</sup> /s)	Minimum daily (ft <sup>3</sup> /s)	Mean (ft <sup>3</sup> /s)	Runoff in acre- feet
October	44,829	9,520	18	1,446	88,920
November	39,859	9,600	16	1,329	79,060
December	98,795	14,800	16	3,187	196,000
January	21,564	3,550	16	696	42,770
February	74,354	10,600	0	2,656	147,500
March	175,399	10,000	919	5,658	347,900
April	87,299	10,300	31	2,910	173,200
May	398,570	49,200	1,070	12,860	790,600
June	694,130	46,500	8,830	23,140	1,377,000
July	471,490	32,600	1,770	15,210	935,200
August	451,310	23,200	6,010	14,560	895,200
September	266,580	21,200	3,860	8,886	528,800
Water Year 1981	2,824,179	49,200	0	7,737	5,602,000